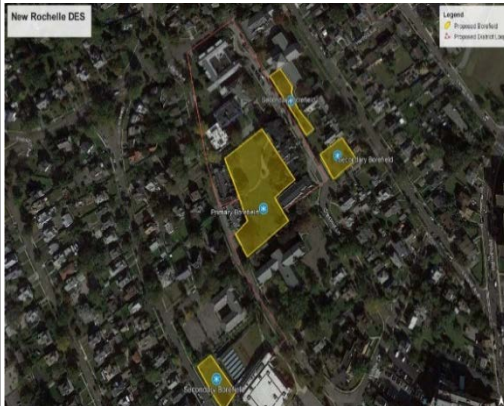


Masonic Community New Rochelle
Category A Feasibility Study
NYSERDA PON 4614

Westchester County

Technical Lead: CHA Consulting

Anticipated completion of study/availability of final report: December 2021



The Site & Beneficiaries

Masonic Care New Rochelle is an existing educational campus being repurposed for new occupancy in New Rochelle with 18 buildings. There are two centralized steam boiler plants which serve a total of seven of the Academic Core buildings and another four buildings that are served in pairs by centralized steam boiler plants. The buildings are heated by a mixture of direct steam and heating hot water created via heat exchangers. Roughly 60-70% of the campus is currently air conditioned by central systems. The campus, collectively 450,000 square feet, will be analyzed to explore district-style heat pumps. Upon renovation, the campus will have diverse occupancy patterns and thermal load profiles, consisting of dormitories and/or assisted living facilities, medical office and clinical facility, academic classrooms, and wellness center. The analysis will quantify the peak of the composited thermal load and compare it to the sum of the individual peaks in order to assess the load-flattening benefits of aggregating into a district.

Potential Thermal Resources

The primary opportunity anticipated will leverage heat recovery heat pumps to move heat from one building to another, and supplemental thermal resources, if needed, could include ground-coupled boreholes, air-source heat pumps, water body thermal resource (Long Island Sound), and/or sewage water. Drilling of a test bore is included in the effort.

Potential Configuration

Will explore 4G design, consisting of a central Thermal Building, which houses the heat pumps and from which hot water and chilled water will be distributed via conveyance pipes to the end-use buildings (simple radiators can be used in the end-use buildings). Benefits of this configuration include: opportunity to integrate with existing thermal infrastructure and use the heat pumps as the first-call (reserving the fossil fuel systems as supplement to meet extreme peaks, or for systemwide redundancy for resilience); focusing the location where electric infrastructure upgrades are needed to meet the expanded electrification demand to occur at the Thermal Building (as opposed to at the end-use buildings) to minimize disruption to mission-focused activities during construction, and cost containment.